IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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FIRST NAMED INVENTOR: Rolf Dessauer	I hereby certify that this paper or fee (along with any paper or fee referred to as being attached or enclosed) is being submitted on the date indicated above via:
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CONF. NO.: 8341	
FOR: PHTHALOCYANINE PRECURSORS IN INFRARED SENSITIVE COMPOSITIONS	Brenda Wiseman Brenda Wiseman
DOCKET NO.: 200310119-1	

APPELLANTS' APPEAL BRIEF UNDER 37 C.F.R. § 41.37

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450
Mail Stop Appeal Brief – Patents

Sir:

Appellants submit this Appeal Brief in connection with their appeal from the final rejection of the Patent Office, mailed July 21, 2008, in the above-identified application. A Notice of Appeal was filed on October 21, 2008, which was received by the USPTO on October 21, 2008.

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I. REAL PARTY IN INTEREST

The real party in interest is Hewlett-Packard Development Company, LP, a limited partnership established under the laws of the State of Texas and having a principal place of business at 20555 S.H. 249 Houston, TX 77070, U.S.A. (hereinafter "HPDC"). HPDC is a Texas limited partnership and is a wholly-owned affiliate of Hewlett-Packard Company, a Delaware Corporation, headquartered in Palo Alto, CA. The general or managing partner of HPDC is HPQ Holdings, LLC.

II. RELATED APPEALS AND INTERFERENCES

Appellants and Appellants' legal representatives know of no other appeals or interferences that will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

III. STATUS OF CLAIMS

Claims 1-25, 33-36, and 38-41 remain pending and are rejected. Claims 26-32 have been withdrawn. Claim 37 has been canceled. The claims on appeal in this application are claims 1-25, 33-36, and 38-41.

IV. STATUS OF AMENDMENTS

No amendments to the presently pending claims have been made since the Office Action mailed on July 21, 2008, by which the final rejection of the pending claims was made.

V. SUMMARY OF CLAIMED SUBJECT MATTER

1. (previously presented) A color forming composition (page 2, line 19; page 7, line 7), comprising:

a) a dye precursor composition including a phthalocyanine precursor and a binder (page 2, lines 20-21; page 7, lines 9-10); and

b) an infrared absorber admixed with or in thermal contact with the dye precursor composition (page 2, lines 22-23; page 7, lines 8-9),

said color forming composition being configured for development in less than about 1 msec (page 2, lines 23-24; page 7, lines 10-12) when exposed to about 30 mW to about 50 mW of infrared radiation (page 19, lines 23-24) at a spot size from about 1 μm to about 200 μm (page 19, lines 26-27).

16. (previously presented) A color forming composition (page 2, line 19; page 7, line 7), comprising:

a) a dye precursor composition including a phthalocyanine precursor and a binder (page 2, lines 20-21; page 7, lines 9-10), said phthalocyanine precursor including a phthalocyanine and a leaving group both coordinated to a metal (page 7, lines 15-17, 28-30); and

b) an infrared absorber admixed with or in thermal contact with the dye precursor composition (page 2, lines 22-23; page 7, lines 8-9),

wherein said color forming composition is configured for development in less than about 1 msec (page 2, lines 23-24; page 7, lines 10-12) when exposed to about 30 mW to about 50 mW of infrared radiation (page 19, lines 23-24) at a spot size from about 1 μm to about 200 μm (page 19, lines 26-27).

17. (previously presented) An optical disk, comprising an optical disk substrate having a color forming composition coated thereon (page 18, lines 2-3, 25-26), said color forming composition including (page 2, line 19; page 7, line 7):

a) a dye precursor composition including a phthalocyanine precursor and a binder (page 2, lines 20-21; page 7, lines 9-10); and

b) an infrared absorber admixed with or in thermal contact with the dye precursor composition (page 2, lines 22-23; page 7, lines 8-9)

wherein said color forming composition is configured for development in less than about 1 msec (page 2, lines 23-24; page 7, lines 10-12) when exposed to about 30 mW to about 50 mW of infrared radiation (page 19, lines 23-24) at a spot size from about 1 μm to about 200 μm (page 19, lines 26-27).

33. (previously presented) A system for labeling a substrate (page 2, lines 30-31;), comprising:

a) an image data source (page 2, line 31;);

b) an optical disk substrate having a color forming composition coated thereon (page 2, lines 31-32;), said color forming composition comprising (page 2, line 19; page 7, line 7):

i) a dye precursor composition including a phthalocyanine precursor and a binder (page 2, lines 20-21; page 7, lines 9-10); and

ii) an infrared absorber admixed with or in thermal contact with the dye precursor composition (page 2, lines 22-23; page 7, lines 8-9),

wherein said color forming composition is configured for development in less than about 1 msec (page 2, lines 23-24; page 7, lines 10-12) when exposed to about 30 mW to about 50 mW of infrared radiation (page 19, lines 23-24) at a spot size from about 1 μm to about 200 μm (page 19, lines 26-27); and

c) an infrared radiation source operatively connected to the image data source and configured to direct infrared radiation having a wavelength of from about 760 nm to less than 800 nm to the color forming composition (page 2, line 32 – page 3, line 3; page 14, lines 16-17), wherein the infrared radiation source produces radiation having a spot size from about 1 μm to about 100 μm (page 7, lines 2-6; page 19, lines 26-27).

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

The issues presented for review are:

a. whether claims 1, 4-10, 12-15, and 39-41 are unpatentable under 35 U.S.C. § 103(a) as being obvious over RD 39219 and JP 58-008357, in view of U.S. Published Application No. 2001/0039895 of Kawauchi et al. (hereinafter "Kawauchi") and/or U.S. Patent No. 5,470,816 to Satake et al. (hereinafter "Satake");

b. whether claims 1, 4-10, 12-15, 17, 20-22, 24, 25, and 39-41 are unpatentable under 35 U.S.C. § 103(a) as being obvious over RD 39219 and JP 58-008357 in view of U.S. Patent No. 5,362,536 to Fleming et al. (hereinafter "Fleming '536") or WIPO Published Application No. WO 03/032299 of Anderson et al. (hereinafter "Anderson");

c. whether claims 1, 4-15, 17, 20-25, and 39-41 are unpatentable under 35 U.S.C. § 103(a) as being obvious over RD 39219 and JP 58-008357 in view of Fleming '536 and Anderson in further view of U.S. Patent No. 5,236,884 to Boggs et al. (hereinafter "Boggs");

d. whether claims 1-10, 12-22, 24, 25, and 39-41are unpatentable under 35 U.S.C. § 103(a) as being obvious over RD 39219 and JP 58-008357, combined with Fleming and Anderson in view of either U.S. Patent No. 2,957,004 to Perkins et al. (hereinafter "Perkins") or U.S. Patent No. 4,284,704 to Fleming et al. (hereinafter "Fleming '704"); and

e. whether claims 1-10, 12-22, 24, 25, 33-36, and 38-41 are unpatentable under 35 U.S.C. § 103(a) as being obvious over over RD 39219 and JP 58-008357, combined with Fleming '536, and Anderson and either Perkins or Fleming '704, further in view

of U.S. Patent No. 4,508,811 to Gravsteijn et al. (hereinafter "Gravsteijn") and Melles Griot Catalog (1995/96) pp. 49-4 through 49-5.

VII. ARGUMENT

A. Appellants' invention

Appellants' invention provides compositions, articles, and systems using a color forming composition, comprising a dye precursor composition including a phthalocyanine precursor and a binder, and an infrared absorber admixed with or in thermal contact with the dye precursor composition; where the color forming composition is configured for development in less than about 1 msec when exposed to about 30 mW to about 50 mW of infrared radiation at a spot size from about 1 μm to about 200 μm.

B. The Asserted References

1. The RD 39219 Reference

RD 39219 introduces an imaging medium for thermal imaging applications with near infrared radiation. 1st page, 1st paragraph. The medium includes 1,3-diiminoisoindoline and/or a related phthalocyanine precursor material, a thermally cleavable adduct capable of generating a phenolic compound with reducing properties, and a near infrared absorbing dye. Id. RD 39219 also lists binders as a possible addition to the composition. 2nd page, 3rd paragraph.

2. The JP 58-008357 Reference

JP 58-008357 is related primarily to a heat sensitive copying paper. Title, page 3 (English Translation). In the specification, the compositions are described as being heated from 100-150°C to generate color. Page 5 (English Translation). Additionally,

the examples noted color change when heated to 150°C. Example 2, page 9 and Example 3, page 10 (English Translation).

3. The Kawauchi Reference

Kawauchi teaches the use of pigments or dyes absorbing infrared light or near infrared light being particularly preferable in the planographic printing plate precursor due to their suitability for use with a laser emitting infrared or near infrared light. Abstract, Para. [0009]. Kawauchi teaches simply that a variety of dyes and pigments are capable of absorbing infrared or near infrared light. Para. [0087-0088]. The reference further teaches the optional use of a near infrared-absorbing sensitizer. Para. [0089]. Kawauchi discloses including light-heat converting agents added in a ratio of 0.01 to 50% by weight relative to the total solids in the photosensitive composition, and further from 1 to 50% by weight relative to an amount of cyanine dye, which is the main light-heat converting agent. Para. [0090].

4. The Satake Reference

Satake teaches thermal recording sheet having a thermal layer containing a dye precursor and a color developer retractable with the dye precursor upon heating to develop a color. Abstract. A dimerized or trimerized urea compound is utilized as the color developer to obtain a thermal recording sheet having a reversible recordability. Abstract. The reference further discloses an optical absorbent included in a coating color in an amount of about 5% in Example 71, which includes 3-N,N-diethylamino-6-methyl-

7-anilinofluorane as a dye precursor, and bis-dithiobenzylnickel complex/sensitizer as an optical absorbent.

5. The Fleming '536 Reference

Fleming '536 is directed to a recordable optical element including a dye. Abstract. The dye is a leuco dye which, upon exposure to a thermally-generated acid, becomes an absorption dye. Abstract.

6. The Anderson Reference

Anderson is directed to a recording and labeling system. Title. The system includes recording write data with a digital recorder on the read/write surface of the CD/DVD, and recording image data by inducing visible color change with a laser in laser sensitive materials on the opposite surface of the CD/DVD. Abstract.

7. The Boggs Reference

Boggs is directed to thermal imaging methods and materials. Title. The thermal imaging systems of Boggs include leuco dyes. Abstract. Boggs was cited by the Examiner primarily to supply additional binders useful with leuco dyes.

8. The Perkins Reference

Perkins is directed to organic complex compounds useful in production of greenish blue to green metal phthalocyanine compounds. Col. 1, lines 13-15.

9. The Fleming '704 Reference

Fleming '704 provides an example for imaging naphthoquinone dyes heat developed for 3 seconds at 150°C. Col. 45, lines 52-57.

10. The Gravesteijn Reference

Gravesteijn is directed at an optical recording element having a recording layer which comprises an alkylpyrylium-squarylium dye or compounds. Abstract. Additionally, Gravesteijn discloses that such compounds are sensitive to laser light having a wavelength of 750-850 nm. Col. 4, lines 49-51.

11. The Melles Griot Catalog Reference

Melled GriotCatalog discloses various lasers having various wavelengths and power ranges.

C. Rejections Under 35 U.S.C. § 103(a)

1. Requirements for Prima Facie obviousness

The Examiner has rejected all of the pending claims under § 103(a) as being *prima facie* obvious over a number of references. The Patent and Trademark Office (PTO), through the Examiner, has the burden of establishing a *prima facie* case of obviousness. *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1998). To satisfy this burden, the PTO must meet the criteria set out in M.P.E.P. § 706.02(j):

> [T]hree basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of

> success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

Moreover, the obviousness analysis must comply with the statutory scheme as explained by the Supreme Court in *Graham v. John Deere Co.*, 383 U.S. 1, 17 (1966), namely, consideration must be given to: (1) the scope and content of the prior art, (2) the differences between the prior art and the claimed invention, (3) the level of ordinary skill in the pertinent art, and (4) additional evidence, which may serve as indicia of non-obviousness.

An excellent summary of how the prior art must be considered to make a case of *prima facie* obviousness is contained in *In re Ehrreich et al.*, 220 U.S.P.Q. 504, 509-511 (CCPA 1979). There the court states that a reference must not be considered in a vacuum, but against the background of the other references of record. It is stated that the question of a § 103 case is what the reference(s) would "collectively suggest" to one of ordinary skill in the art. However, the court specifically cautioned that the Examiner must consider the entirety of the disclosure made by the reference and avoid combining them indiscriminately.

In finding that the "subject matter as a whole" would not have been obvious in *Ehrreich* the court concluded:

> "Thus, we are directed to no combination of prior art references which would have rendered the claimed subject matter as a whole obvious to one of ordinary skill in the art at the time the invention was made. The PTO has not shown the existence of all the claimed limitations in the prior art or any suggestion leading to their combination in the manner claimed by applicants." (underlining added)

It has been widely recognized that virtually every invention is a combination of elements and that most, if not all, of these will be found somewhere in an examination of the prior art. This reasoning lead the court, in *Connell v. Sears, Roebuck & Co.*, 220 U.S.P.Q. 193, 199 (Fed. Cir. 1983) to state:

> "...it is common to find elements or features somewhere in the prior art. Moreover, most if not all elements perform their ordained and expected function. The test is whether the claimed invention as a whole, in light of all the teachings of the references in their entireties, would have been obvious to one of ordinary skill in the art at the time the invention was made." (underlining added)

With the above background in mind, Appellants contend that the Examiner has not met this burden with respect to any of the claims on appeal. Particularly, Appellants submit that the PTO has failed to show that each and every element of the claimed invention is contained in the combined references. Appellants now turn to a discussion of the individual rejections at issue, and the references on which they are based.

2. Claims 1-25, 33-36, and 38-41

Appellants submit that claims 1-25, 33-36, and 38-41are patentable over the combinations of references cited herein, because these references fail to teach each and every element of the claims.

All of the 103 rejections are based on combinations of references using RD 39219 and JP 58-008357 as primary references in combination with or in view of other references. As discussed above, RD 39219 introduces an imaging medium for thermal imaging applications with near infrared radiation. The medium includes 1,3-diiminoisoindoline and/or a related phthalocyanine precursor material, a thermally

cleavable adduct capable of generating a phenolic compound with reducing properties, and a near infrared absorbing dye. RD 39219 also lists binders as a possible addition to the composition. JP 58-008357 appears to be largely cumulative to RD 39219 with respect to relevant points. This reference is related primarily to a heat sensitive copying paper. In the specification, particularly the examples, the compositions are described as being heated to 150°C, where color change was noted. Similar to RD 39219, JP 58-008358 does not teach or suggest extremely fast development times as required by the currently pending claims, nor does JP 58-008358 teach the use of an infrared radiation spot size within the range of about 1 to 200 micrometers.

The present independent claims 1, 16, 17, and 33 each require a color forming composition configured for development in less than about 1 msec when exposed to about 30 – 50 mW IR at a spot size from about 1 – 200 micrometers. As the Examiner has acknowledged, this recitation goes to the sensitivity of the composition. E.g., Advisory Action dated October 9, 2008. However, the Examiner has argued that such elements need not be shown since "[t]he language ... merely describes the sensitivity of the medium as these claims are not direct[ed] to the method of use or the apparatus, therefore the applicant's arguments that the specific laser, laser power and spot size needs to be taught in the references is incorrect." Final Office Action, dated July 21, 2008, page 6.

However, Appellants submit that the Examiner is incorrect and that the present elements act as a functional limitation on the claims. More specifically, the sensitivity of the composition requires careful selection of composition components and quantities. In other words, such limitations provide for chemically different compositions but limit

those compositions based on the functionality of the development time. Further, Appellants submit that the MPEP allows for functional limitations. Specifically, 2173.05(g) Functional Limitations states:

> A functional limitation is an attempt to define something by what it does, rather than by what it is (e.g., as evidenced by its specific structure or specific ingredients). There is nothing inherently wrong with defining some part of an invention in functional terms. Functional language does not, in and of itself, render a claim improper. *In re Swinehart*, 439 F.2d 210, 169 USPQ 226 (CCPA 1971).
>
> A functional limitation must be evaluated and considered, just like any other limitation of the claim, for what it fairly conveys to a person of ordinary skill in the pertinent art in the context in which it is used. A functional limitation is often used in association with an element, ingredient, or step of a process to define a particular capability or purpose that is served by the recited element, ingredient or step.

As such, Appellants submit that the present "sensitivity" or more specifically, the claim elements of "configured for development in less than about 1 msec when exposed to about 30 mW to about 50 mW of infrared radiation at a spot size from about 1 μm to about 200 μm" is a functional limitation and defines the composition "by what it does," i.e., develops within the stated parameters, and "must be evaluated and considered, just like any other limitation of the claim." MPEP 2173.05(g). Appellants note that the present issue constitutes the major difference between Appellants' position and the Examiner's position.

Additionally, Appellants submit that the present functional limitations must be disclosed or inherent in the cited prior art before a *prima facie* case for obviousness based thereupon can be supported. As Appellants have stated throughout prosecution, the cited

references do not teach a color forming composition so configured. In the Office Action of January 28, 2008, the Examiner argued that the teaching of IR absorber present in amounts of ~4% would "inherently sensitize the compositions within the bounds of the claims." Appellants submit that the Examiner has provided insufficient support for this conclusion. Furthermore, as the sensitivity of the composition can depend on the type and amount of the components in the composition, merely pointing to an amount of an IR absorber without consideration of the exact chemical structure of the absorber, and further without consideration of the amounts of other components in the composition, does not reflect on the sensitivity of the color forming composition as a whole. Further, the Examiner appears to not appreciate that the present functional limitations are just that, i.e., limitations that must be shown to establish a proper *prima facie* case under 103. .

To be clear, Appellants submit that those having skill in the art will appreciate that the sensitivity of such color forming compositions is a function of a number of factors, including the nature and properties of the infrared absorber, phthalocyanine precursor, and binder, as well as the relative concentrations of each. This concept is supported in the Appellants' specification. E.g. paragraphs 0053-0055. One skilled in the art will also recognize that not every formulation based on a combination of components will exhibit the same sensitivity and therefore the same development time.

Further, Appellants note that the plain and ordinary meaning, the term "configured" as recited in the present claims refers to the purposeful selection, placement and/or design to effectuate a predetermined function or purpose or quality. Therefore, configuring something to do something requires first, an identified objective or purpose, and second, selection and combination consistent with the design to reach the purpose or

objective. As such, the recited sensitivity characteristics are a limitation on the scope of the claim as Appellants are not claiming every combination of compositional elements; only those configured to achieve the present development times within the recited parameters.

Appellants wish to address the Examiner's citation of Appellants' specification; i.e., referring to US 2772284. Specifically, in the Office Action of January 28, 2008, the Examiner argues that "precursors relied upon from 2772284 (se prepub at [0034]) are disclosed as being converted to the phthalocyanine by heating at 200 degrees for fifteen minutes (4/38-45 of 2772284)." However, the Applicant submits that heating for fifteen minutes equates to 900,000 msec, which is greatly more than the "about 1 msec" required by the present claims. The substantial difference between development times translates into quite different potential applications. Furthermore, the vast development time between the two teaches away from a composition configured for development in less than about 1 msec. The present claims require a much more sensitive composition, where the sensitivity is particular to specific conditions.

The Examiner suggests that the disclosure of US 2772284 is incongruent with Appellants' arguments as the compounds from US 2772284 appear to be less sensitive than those of the cited art. However, Appellants note that Appellants are not claiming the compounds of US 2772284. Further, Appellants submit that the use of any compounds from US 2772284 that achieve the present sensitivity; i.e., development in less than about 1 msec when exposed to about 30 mW to about 50 mW of infrared radiation at a spot size from about 1 μm to about 200 μm, would only serve to support patentability of the present color forming compositions since such compositions were clearly not shown in

the art. To be clear, Appellants submit that the prior art cited by the Examiner, fails to teach a composition having a development in less than about 1 msec when exposed to about 30 mW to about 50 mW of infrared radiation at a spot size from about 1 μm to about 200 μm and further submits that US 2772284 cited in Appellants' specification does not teach such compositions.

As discussed above, Appellants submit that in order to render the present claims obvious, the cited prior art must teach each and every element of those claims, either expressly or inherently. As stated before, the sensitivity of color forming compositions is not expressly disclosed in the cited references. As for the alleged inherent disclosure of this limitation, Appellants submit that the present references, including combinations thereof, do not provide such a teaching.

Appellants wish to provide the current case law regarding the use of inherency in establishing a proper 103 rejection. In In re Rijckaert, the Court concluded that even though the Board had found that a certain condition was known to be optimal, the Court concluded that the condition was not necessarily inherent and overturned the 103 rejections based on such inherency. 9 F.3d 1531, 1533-34 (Fed. Cir. 1993). Specifically, the Court provided several inherency standards applicable to obviousness, including:

> "[t]he mere fact that a certain thing may result from a given set of circumstances is not sufficient [to establish inherency.]" In re Oelrich, 666 F.2d 578, 581-82, 212 USPQ 323, 326 (CCPA 1981) (citations omitted). "That which may be inherent is not necessarily known. Obviousness cannot be predicated on what is unknown." In re Spormann, 53 C.C.P.A. 1375, 363 F.2d 444, 448, 150 USPQ 449, 452 (CCPA 1966). Such a retrospective view of inherency is not a substitute for some teaching or suggestion supporting an obviousness rejection. See In re Newell, 891 F.2d 899, 901, 13 USPQ2d 1248, 1250 (Fed. Cir. 1989).

As applied to the present case, the mere fact that the present references teaches compositional elements that may provide a sensitive color forming composition, such a possibility is not enough to establish inherency. Additionally, even if the present combination may be inherent from the cited references, the present combination of materials "configured for development in less than about 1 msec when exposed to about 30 mW to about 50 mW of infrared radiation at a spot size from about 1 μm to about 200 μm"" was not known.

In light of the discussion above, Appellants submit that a reference or combination of references that only provides the components of the composition without teaching the sensitivity characteristics cannot be said to expressly or inherently disclose those characteristics.

The Examiner also argues that the present claims seek coverage that is not commensurate with the scope of coverage sought. Final Office Action, dated July 21, 2008, page 7. However, the Applicant submits that the present claims are fully supported by the Examples and notes that the Examiner has not rejected the present claims under 112. As such, the Applicant submits that enablement is not an issue in the present prosecution. Regardless, the Applicant submits that the subject matter of the present claims has been exemplified. Therefore, the Applicant submits that the present claim elements describe Applicant's invention commensurate with the present disclosure.

Additionally, Appellants contend that the present rejections are based on impermissible hindsight. The court has stated that the Applicant's specification cannot be used as a roadmap, i.e., no hindsight reconstruction. Specifically, the court in McNeil-PPC, Inc. v. Perrigo Co., *516 F. Supp. 2d 238,* 248 (S.D.N.Y. 2007), affirmed that

> the claimed invention as a whole must be compared to the prior art as a whole, Hybritech Inc. v. Monoclonal Antibodies, Inc., 802 F.2d 1367, 1383 (Fed. Cir. 1986); Hodosh v. Block Drug Co., 786 F.2d 1136, 1143 n.5 (Fed. Cir. 1986), and courts must avoid aggregating pieces of prior art through hindsight which would not have been combined absent the inventors' insight, KSR, 127 S. Ct. 1727, [WL] at *16.

Accordingly, if a prior art reference is sought to provide a specific element of a claim with the use of hindsight, any rejection based thereon is improper and should be withdrawn. Appellants submit that without the present inventor's insight, the present color forming composition being configured for development in less than about 1 msec when exposed to about 30 mW to about 50 mW of infrared radiation at a spot size from about 1 μm to about 200 μm was not known.

As the combinations fail to teach each and every element of the claims, a *prima facie* case of obviousness has not been presented and Appellants respectfully request that the Board overturn the present rejection.

As the Examiner has cited the combination of RD 39219 and JP 58-008357 in view of additional references, such combinations are specifically addressed as follows.

Rejections based on RD 39219 and JP 58-008357, in view of Kawauchi and/or Satake

Claims 1, 4-10, 12-15, and 39-41 were rejected as unpatentable over the noted combination of references. Appellants renew the above arguments with respect to this rejection. In short, the addition of Kawauchi and/or Satake fails to remedy the shortcomings of the combination of RD 39219 and JP 58-008357. Specifically, the combinations of RD 39219 and JP 58-008357 with one or both of Kawauchi and Satake

fails to teach or suggest a color forming composition configured for development in less than about 1 msec when exposed to about 30 – 50 mW IR at a spot size from about 1 – 200 micrometers, either directly or inherently. As the combinations fail to teach each and every element of the claims, a *prima facie* case of obviousness has not been presented and Appellants respectfully request that the Board overturn the present rejection.

Rejections based on RD 39219 and JP 58-008357 in view of Fleming '536 and Anderson

Claims 1, 4-10, 12-15, 17, 20-22, 24, 25, and 39-41 were rejected under 35 U.S.C. 103(a) as being unpatentable over the noted combinations of references. Appellants renew the above arguments with respect to this rejection. In short, the addition of Fleming '536 and Anderson fails to remedy the shortcomings of the combination of RD 39219 and JP 58-008357. Specifically, the combinations of RD 39219 and JP 58-008357 with one or both of Fleming '536 and Anderson fails to teach or suggest a color forming composition configured for development in less than about 1 msec when exposed to about 30 – 50 mW IR at a spot size from about 1 – 200 micrometers, either directly or inherently. As the combinations fail to teach each and every element of the claims, a *prima facie* case of obviousness has not been presented and Appellants respectfully request that the Board overturn the present rejection.

Rejections based on RD 39219 and JP 58-008357 in view of Fleming '536 and Anderson in further view of Boggs

Claims 1, 4-15, 17, 20-25, and 39-41 were rejected under 35 U.S.C. 103(a) as unpatentable over the noted combination of references. Appellants renew the above arguments with respect to this rejection. In short, the addition of Boggs fails to remedy the shortcomings of the combination of RD 39219 and JP 58-008357 in view of Fleming '536 and Anderson. Specifically, the combinations of RD 39219 and JP 58-008357 with Fleming '536 and Anderson further in view of Boggs fails to teach or suggest a color forming composition configured for development in less than about 1 msec when exposed to about 30 – 50 mW IR at a spot size from about 1 – 200 micrometers, either directly or inherently. As the combinations fail to teach each and every element of the claims, a *prima facie* case of obviousness has not been presented and Appellants respectfully request that the Board overturn the present rejection.

Rejections based on RD 39219 and JP 58-008357, combined with Fleming '536 and Anderson in view of either Perkins or Fleming '704

Claims 1-10, 12-22, 24-25, and 39-41 were rejected under 35 U.S.C. 103(a) as unpatentable over the noted combination of references. Appellants renew the above arguments with respect to this rejection. In short, the addition of Perkins or Fleming '704 fails to remedy the shortcomings of the combination of RD 39219 and JP 58-008357 in view of Fleming '536 and Anderson. Specifically, the combinations of RD 39219 and JP 58-008357 with Fleming '536 and Anderson further in view of Perkins or Fleming '704 fails to teach or suggest a color forming composition configured for development in less

than about 1 msec when exposed to about 30 – 50 mW IR at a spot size from about 1 – 200 micrometers, either directly or inherently. As the combinations fail to teach each and every element of the claims, a *prima facie* case of obviousness has not been presented and Appellants respectfully request that the Board overturn the present rejection.

Rejections based on RD 39219 and JP 58-008357, combined with Fleming '536, and Anderson and either Perkins or Fleming '704, further in view of Gravsteijn and Melles Griot Catalog (1995/96) pp. 49-4 through 49-5

Claims 1-10, 12-22, 24-25, 33-36, and 38-41 were rejected under 35 U.S.C. 103(a) as unpatentable over the noted combination of references. Appellants renew the above arguments with respect to this rejection. In short, the addition of Gravsteijn and Melles Griot Catalog fails to remedy the shortcomings of the combination of RD 39219 and JP 58-008357 in view of Fleming '536 and Anderson in view of Perkins or Fleming '704. Specifically, the combinations of RD 39219 and JP 58-008357 with Fleming '536 and Anderson further in view of Perkins or Fleming '704 further in view of Gravsteijn and Melles Griot Catalog fails to teach or suggest a color forming composition configured for development in less than about 1 msec when exposed to about 30 – 50 mW IR at a spot size from about 1 – 200 micrometers, either directly or inherently. As the combinations fail to teach each and every element of the claims, a *prima facie* case of obviousness has not been presented and Appellants respectfully request that the Board overturn the present rejection.

D. Conclusion

Appellants respectfully submit that the claims on appeal set forth in the Appendix are patentably distinct from the asserted prior art references. Particularly, none of the asserted combinations of references would teach one of ordinary skill in the art within the meaning of 35 U.S.C. § 103(a) to arrive at the presently claimed invention. Appellants contend that the various combinations with RD 39219 and JP 58-008357 fail to teach each and every element of the claimed invention, and that a *prima facie* case of obviousness has not been established.

For at least these reasons, Appellants respectfully request that the Board of Appeals reverse the rejection and remand the case to the Examiner for allowance.

Dated this 9th day of December, 2008

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VIII. CLAIMS APPENDIX

1. (previously presented) A color forming composition, comprising:

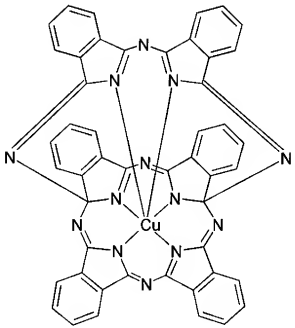
a) a dye precursor composition including a phthalocyanine precursor and a binder; and

b) an infrared absorber admixed with or in thermal contact with the dye precursor composition,

said color forming composition being configured for development in less than about 1 msec when exposed to about 30 mW to about 50 mW of infrared radiation at a spot size from about 1 μm to about 200 μm.

2. (original) The composition of claim 1, wherein the phthalocyanine precursor includes a phthalocyanine and a leaving group both coordinated to a metal.

3. (original) The composition of claim 2, wherein the phthalocyanine precursor includes the following structure



4. (original) The composition of claim 1, wherein the phthalocyanine precursor comprises a 1,3-diiminoisoindoline and a metal donor.

5. (original) The composition of claim 4, wherein said 1,3-diiminoisoindoline is a member selected from the group consisting of 1,3-diiminoisoindoline, 5-phenyl-1,3-diiminoisoindoline, 5-methoxy-1,3-diiminoisoindoline, and 4-aza-1,3-diiminoisoindoline and said metal donor is a metal complex of hydroxyethyl sarcosine.

6. (previously presented) The composition of claim 1, wherein the infrared absorber is selected from the group consisting of polymethine dyes, polymethine indolium dyes, metal complex IR dyes, cyanine dyes, indocyanine green, squarylium dyes, chalcogenopyryloarylidene dyes, croconium dyes, metal thiolate dyes, bis(chalcogenopyrylo)polymethine dyes, oxyindolizine dyes, bis(aminoaryl)polymethine dyes, merocyanine dyes, indolizine dyes, pyrylium dyes, quinoid dyes, and mixtures thereof.

7. (previously presented) The composition of claim 6, wherein the infrared absorber is a polymethine indolium dye, said polymethyl indolium dye being 2-[2-[2-chloro-3-[2-(1,3-dihydro-1,3,3-trimethyl-2*H*-indol-2-ylidene)-ethylidene]-1-cyclopenten-1-yl-ethenyl]-1,3,3-trimethyl-3*H*-indolium perchlorate.

8. (original) The composition of claim 1, wherein the color forming composition is optimized for development using infrared radiation having a wavelength of from about 760 nm to less than 850 nm.

9. (original) The composition of claim 1, wherein color forming composition is optimized for development in from about 100 μsec to about 500 μsec.

10. (previously presented) The composition of claim 1, wherein the binder is selected from the group consisting of cellulose acetate butyrate, polymethyl methacrylate, polyvinyl butyral, and mixtures thereof.

11. (previously presented) The composition of claim 10, wherein the binder is a cellulose acetate butyrate.

12. (original) The composition of claim 1, further comprising a reducing agent admixed with the dye precursor.

13. (original) The composition of claim 12, wherein the reducing agent is a member selected from the group consisting of hydroquinone, phenidone, ascorbic acid, hydrazine, formamide, formic acid, and mixtures thereof.

14. (original) The composition of claim 13, wherein the reducing agent is hydroquinone.

15. (original) The composition of claim 1, wherein the color forming composition is spin-coatable.

16. (previously presented) A color forming composition, comprising:

a) a dye precursor composition including a phthalocyanine precursor and a binder, said phthalocyanine precursor including a phthalocyanine and a leaving group both coordinated to a metal; and

b) an infrared absorber admixed with or in thermal contact with the dye precursor composition,

wherein said color forming composition is configured for development in less than about 1 msec when exposed to about 30 mW to about 50 mW of infrared radiation at a spot size from about 1 μm to about 200 μm.

17. (previously presented) An optical disk, comprising an optical disk substrate having a color forming composition coated thereon, said color forming composition including:

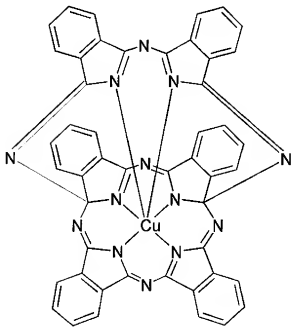
a) a dye precursor composition including a phthalocyanine precursor and a binder; and

b) an infrared absorber admixed with or in thermal contact with the dye precursor composition

wherein said color forming composition is configured for development in less than about 1 msec when exposed to about 30 mW to about 50 mW of infrared radiation at a spot size from about 1 μm to about 200 μm.

18. (original) The optical disk of claim 17, wherein the phthalocyanine precursor includes a phthalocyanine and a leaving group both coordinated to a metal.

19. (original) The optical disk of claim 18, wherein the phthalocyanine precursor includes the following structure



20. (previously presented) The optical disk of claim 17, wherein the infrared absorber is selected from the group consisting of polymethine dyes, polymethine indolium dyes, metal complex IR dyes, cyanine dyes, indocyanine green, squarylium dyes, chalcogenopyryloarylidene dyes, croconium dyes, metal thiolate dyes, bis(chalcogenopyrylo)polymethine dyes, oxyindolizine dyes, bis(aminoaryl)polymethine dyes, merocyanine dyes, indolizine dyes, pyrylium dyes, quinoid dyes, and mixtures thereof.

21. (original) The optical disk of claim 20, wherein the infrared absorber is 2-[2-[2-chloro-3-[2-(1,3-dihydro-1,3,3-trimethyl-2*H*-indol-2-ylidene)-ethylidene]-1-cyclopenten-1-yl-ethenyl]-1,3,3-trimethyl-3*H*-indolium perchlorate.

22. (original) The optical disk of claim 17, wherein the infrared radiation absorber is in thermal contact with the phthalocyanine precursor.

23. (previously presented) The optical disk of claim 17, wherein said binder is a cellulose acetate butyrate.

24. (original) The optical disk of claim 17, wherein said color forming composition is optimized for development using infrared radiation having a wavelength of from about 760 nm to about 800 nm.

25. (original) The optical disk of claim 17, further comprising a stabilizing agent admixed with or layered over the color forming composition.

26. (withdrawn) A method of forming color images on a substrate, comprising:

a) applying a color forming composition onto a substrate, said color forming composition being a mixture including:

i) a dye precursor composition including a phthalocyanine precursor and a binder; and

ii) an infrared absorber admixed with or in thermal contact with the dye precursor composition,

said color forming composition being configured for development in less than 1 msec; and

b) applying infrared radiation to the color forming composition sufficient to cause reduction of the phthalocyanine precursor to form a phthalocyanine dye without decomposing the color forming composition.

27. (withdrawn) The method of claim 26, wherein the energy is applied at from about 0.3 to about 0.5 J/cm^2.

28. (withdrawn) The method of claim 26, wherein the energy is applied for about 100 μsec to about 500 μsec.

29. (withdrawn) The method of claim 26, wherein the energy is applied using an infrared laser having a wavelength of about 780 nm.

30. (withdrawn) The method of claim 26, wherein the phthalocyanine precursor includes a phthalocyanine and a leaving group both coordinated to a metal.

31. (withdrawn) The method of claim 26, wherein the infrared absorber is a member selected from the group consisting of polymethine dyes, polymethyl indolium dyes, metal complex IR dyes, cyanine dyes, indocyanine green, squarylium dyes, chalcogenopyryloarylidene dyes, croconium dyes, metal thiolate dyes, bis(chalcogenopyrylo)polymethine dyes, oxyindolizine dyes, bis(aminoaryl)polymethine dyes, merocyanine dyes, indolizine dyes, pyrylium dyes, quinoid dyes, and mixtures thereof.

32. (withdrawn) The method of claim 26, wherein the substrate is an optical disk.

33. (previously presented) A system for labeling a substrate, comprising:

a) an image data source;

b) an optical disk substrate having a color forming composition coated thereon, said color forming composition comprising:

i) a dye precursor composition including a phthalocyanine precursor and a binder; and

iii) an infrared absorber admixed with or in thermal contact with the dye precursor composition,

wherein said color forming composition is configured for development in less than about 1 msec when exposed to about 30 mW to about 50 mW of infrared radiation at a spot size from about 1 μm to about 200 μm; and

c) an infrared radiation source operatively connected to the image data source and configured to direct infrared radiation having a wavelength of from about 760 nm to less than 800 nm to the color forming composition, wherein the infrared radiation source produces radiation having a spot size from about 1 μm to about 100 μm.

34. (original) The system of claim 33, wherein the phthalocyanine precursor includes a phthalocyanine and a leaving group both coordinated to a metal.

35. (previously presented) The system of claim 33, wherein the infrared absorber is a member selected from the group consisting of polymethine dyes, polymethine indolium dyes, metal complex IR dyes, cyanine dyes, indocyanine green, squarylium dyes, chalcogenopyryloarylidene dyes, croconium dyes, metal thiolate dyes, bis(chalcogenopyrylo)polymethine dyes, oxyindolizine dyes, bis(aminoaryl)polymethine dyes, merocyanine dyes, indolizine dyes, pyrylium dyes, quinoid dyes, and mixtures thereof.

36. (original) The system of claim 33, wherein the infrared radiation source produces radiation having a spot size from about 10 μm to about 60 μm.

37. (canceled)

38. (original) The system of claim 33, wherein the substrate is an optical disk.

39. (previously presented) The composition of claim 1, wherein the infrared radiation is applied at a single spot size of about 10 μm to about 60 μm.

40. (previously presented) The composition of claim 1, wherein the infrared radiation produces a heat flux from about 0.05 J/cm^2 to 5.0 J/cm^2.

41. (previously presented) The composition of claim 1, wherein the infrared radiation produces a heat flux from about 0.3 J/cm^2 to 0.5 J/cm^2.

IX. EVIDENCE APPENDIX

None

X. RELATED PROCEEDINGS APPENDIX

None